REMARKS

This paper is intended as a full and complete response to the Office Action dated July 31, 2008, having a shortened statutory period for response set to expire on October 31, 2008. Applicant respectfully requests entry and consideration of the following amendments and remarks. **Applicant requests a 1 month Extension and is paying the associated fee with this response.**

Claims 1, and 3-17 are currently pending in the Application.

Claim 1, 3, 4, 10, 11, and 12, are currently amended in this Response.

Claim 2 is currently cancelled in this Response.

Claim 17 was previously presented.

I.   Claim Rejections -- 35 USC § 101

The Office Action rejected claims 1-9 under 35 USC § 101, for being directed to non-statutory subject matter. The Office Action appears to assert that Claims 1 through 9 are directed towards an abstract idea because no physical object is "transformed" into a different state or thing.

In response Applicant has amended the preamble of claim 1 to recite, in part, a "computer implemented method." Applicant respectfully contends, that each of claims 1-9, as amended, are directed to a process comprising the steps for generating a spoken dialog application which has been tied to the apparatus of a "computer." Applicant contends the claimed process, as amended, does not fall within the judicially created exceptions of an abstract idea, a natural phenomenon, or a law of nature.

II.   Claim Rejections – 35 USC § 103

The Office Action rejected claims 1, 5-12, and 14-17 under 35 USC § 103 (a) as being unpatentable over *Ehsani et al.* (US PGPub 2002/0032564) in view of *Valles* (US PGPub 2004/0083092).

The combination applied to claim 1 fails to teach every limitation of claim 1.

Claim 1 requires "generating a dialogue application code for a spoken dialogue application from said finite state machine, wherein said generated dialogue application code for said functions are executable during runtime of said spoken dialogue application." As claimed, the finite state machine generates the application code. The application code is generated dependent on how the finite state machine is traversed. [Applicant's Specification, Page 6, Paragraph 25].

In contrast, *Ehsani et al.* are primarily concerned with the creation of a grammar network or database, much like a thesaurus for use in voice controlled user interfaces [*Ehsani et al.*, abstract and Paragraph 34]. *Ehsani et al.* also provide teachings for using the grammar network for designing voice controlled user interfaces [*Ehsani et al.*, Paragraph 199]. *Ehsani et al.* fail to teach or even suggest generating application code.

Claim 1 requires "generating a finite state machine from the context free grammar representation of the call flow." The finite state machine generates dialogue function code based in the requirements of the call flow diagram. The code is executable in run time as the finite state machine is generating the dialogue function code. [See Applicant's Original Specification, page 7, paragraph 0031]. *Ehsani et al.* do not teach a finite state machine generating the dialogue application code.

In sharp contrast, *Ehsani et al.* teach a Dialog Finite State Machine programmed to generate a response to each instruction passed on to the Dialog Finite State Machine. The Dialog Finite State Machine must interact with a user interface that has predesigned scripts. [See *Ehsani et al.*, paragraphs 0215 and 0216]. The previous office action states that the Dialog Finite State Machine, despite being referred to as a dialog manager, generates script code for spoken

application dialog. *Ehsani et al.* are cited as supporting the proposition the Dialog Finite State Machine generates script code for spoken application dialog, [*Ehsani et al.*, Paragraphs [0215-216 and 0231]. However, each cited paragraphs fails to provide any teaching for generating code or even any suggestions for the Dialog Finite State Machine generating code.

Ehsani et al. disclose a separate embodiment of the system directed toward a "voice page" which breaks a webpage into an HTML like language for scripting a dialog allowing users to interact with the webpage with an audio input device, such as a touch tone phone (*Ehsani et al.*, Paragraph [0231]). Therefore, Paragraph 0231 only contributes the addition of a user interface, with pre-designated scripts, being derived from a webpage. The Dialog Finite State Machine would still only generates responses to each instruction received, and does not generate script from the webpage. *Ehsani et al.*, at Paragraphs 0215 and 0216, do not provide that the Dialog Finite State Machine generates code. In fact, *Ehsani et al.* specifically provide that the Dialog Finite State Machine "contains instructions for prompting the caller for speech input and for generating the appropriate system response to each instruction that is passed to the program by the natural language understanding component." [*Ehsani et al.*, Paragraph 0215]. *Ehsani et al.* also provide the Applicant Interface as "a set of scripts that are called on by the Finite Sate Machine." [*Ehsani et al.*, Paragraph 0216] The previous office action appears to regard calling scripts as generating code because there will be some variation in what scripts are called. However, the code is already in place and, hence, not generated The Finite State Machine is simply responding to inputs, and not generating anything beyond the elements already in place, and particularly not generating any code for an application.

Further, neither *Ehsani et al.* nor *Valles* teach or even suggest "generating a finite state machine from the context free grammar representation of the call flow." The previous office action cites *Ehsani et al.* as teaching this limitation in the first eight lines of Paragraph [215]. However, *Ehsani et al.* state that the Finite State Machine is a computer program which "is passed" instructions from a natural language understanding component. [Paragraph 00215] This section provides no teaching or even suggestion for generating the Finite State Machine.

Each of *Ehsani et al.* and *Valles* and *Marx et al.* fail to teach or even suggest a context free grammar representation of a call flow as required by claim 1. Instead, *Ehsani et al.* discloses developing a"grammar," which allows a person "with no linguistic expertise."

Additionally claim 1, has been amended to require the step of "generating the context free grammar representation of said call flow using said graphical representation," which is not taught or even suggested by either *Ehsani et al.* or *Valles*. The previous Office Action cited *Marx et al.* as disclosing the step of generating the context free grammar representation of the call flow using graphical representations. However, Marx *et al.* do not disclose generating a context free grammar representation of the call flow using the graphical representation which is then used to generate a finite state machine.

Instead, *Marx et al.* contain a graphical illustration which contains module components [*Marx et al.*, Fig. 7]. These module components contain a Speech Recognition Engine for verbal inputs [*Marx et al.*, Col. 7, lines 29-34]. The Speech Recognition Engine can include a "grammar" which is used to assist in understanding voice inputs. This grammar is completely unrelated to the context free grammar of claim 1. The context free grammar of claim 1 is a representation of a call flow for generating spoken dialog applications, it is not a set of rules used utilized by a Speech Recognition Engine.

While *Marx et al.* illustrate a "grammar," this "grammar" is unrelated to the context free grammar required by claim 1. In further contrast to claim 1, the "grammar" of *Marx et al.* is contained within a module illustrated in a graphical representation. There is no teaching or suggestion that this grammar is derived from the graphical representation, much less as graphical representation of a flow diagram. Nor can any suggestion be implied because any suggestion would require a principal change the operation of the system disclosed by *Marx et al.*

As amended, claim 1 requires at least a first root node and at least a first leaf node, where the spoken dialog application walks the finite state machine from the at least one root to the at least one leaf. Neither *Ehsani et al.* nor *Valles* teach or even suggest walking a finite state machine from a first node to a second node for producing a spoken dialog application.

To summarize, *Ehsani et al.*, *Valles* and *Marx et al.*, alone or in combination, fail to teach or even suggest every limitation of Claim 1. The claimed invention starts with a graphical representation of a call flow which is transformed into a context free grammar representation of the call flow. The context free grammar representation of the call flow generates the finite state machine, which then generates the dialogue application. The cited references fail to teach or even suggest generating a context free grammar representation of a call flow. Instead, the references include elements such as sets of grammar rules as part of a module or a speech recognition engine. The "grammars" disclosed by each reference are directed to interpreting an input in order to prompt an output. These "grammars" disclosed by the cited prior art can not be used, or modified, in order to generate finite state machine for generating application code. Therefore, the cited references, alone or in communication, fail to teach every limitation of claim 1.

It would not be obvious to make the combination as applied to claim 1.

In addition to the element-specific analysis outlined above, and assuming, without admitting, that the *Ehsani et al.*, *Valles,* and *Marx et al.* references teach what is asserted by the Examiner, Applicant asserts that the Examiner's combination applied to claim 1 is motivated by hindsight, rather than by a teaching or suggestion within the prior art, and that such a combination would require a fundamental change to the principal operation to *Ehsani et al.*

To establish a *prima facie* case of obviousness, the Examiner must meet three criteria. First, there must be some motivation or suggestion, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to combine the references. Second, there must be a reasonable expectation of success, and finally, the prior art references must teach or suggest all the claim limitations. The Examiner bears the initial burden of providing some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." MPEP 2142.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). MPEP 2143.01, Section VI. *In re Ratti*, the court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." Id.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

The desirability of the combination of Ehsani *et al.* with *Valles* is not suggested by the prior art of record. Any arguable suggestion found in the prior art to make this combination is outweighed by the fact these references teach away from each other and would require modifications to their principal operation in order to be combined. Particularly, *Valles* criticizes the use of a call flow and introduces a method of developing a dialogue system that does not use a call flow, and *Ehsani et al.* rely on the use of a designed call flow to work [*Valles*, Paragraphs 5, 7, 8, and 30]. Blending these two references would violate the principal of MPEP as set forth below.

When considering obviousness of a combination of known elements, the operative question is "whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR International Co. v. Teleflex Inc.*, 550 U.S. at ___, 82 USPQ2d at 1396. "In *United States v. Adams*, [t]he Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result." *Id.* at ___, 82 USPQ2d at 1395. The combination of *Ehsani et al.* and *Valles* do not present this "substitution" of parts. Instead, the operation of *Ehsani et al.* would have to be modified in order to accommodate the teachings of *Valles*.

Specifically, Valles states that the general principal of the invention is to provide "an apparatus capable of maintaining unrestricted conversations with human begins, without

imposing on such human what they can say or cannot say and lets users be spontaneous in their conversation" [See *Valles* Paragraph 30].

Ehsani et al. require a designed call flow. [*Ehsani et al.*, Paragraph 34]. *Ehsani et al.* teach that "the Dialogue Finite Machine can be implemented as a computer program that specifies the flow of the human-machine interaction" [*Ehsani et al.*, Paragraph 215].

Ehsani et al. specifically teach that "[t]he first step in designing a recognition network for a voice-controlled dialogue system consists of specifying the call flow in such a way as to anticipate the logic of the interaction." [*Ehsani et al.*, Paragraph 0222].

The previous office action argues that the tree data structure disclosed at paragraph [0043] of *Valles* would be depicted as the flow of a conversation and its possibilities. However, this tree data structure is not he same as a call flow. The tree data structure described in *Valles* is a conceptual structure compiled by a grammar parser. On the other hand a call flow, which depicts the possible conversation dialogs, is heavily criticized, particularly in paragraph [0007] of *Valles*. Further, claim 1 has been amended to require a graphical representation of potential dialog call flows.

To blend *Valles* and with *Ehsani et al.*, one would have to modify *Ehsani et al.* not to use the call flow. The removal of the call flow from *Ehsani et al.* would principally change the operation of *Ehsani et al.* That is, if *Ehsani et al.* were modified to not include a call flow then the concept of expanding a call flow into a recognition grammar, as is the invention of *Ehsani et al.*, could not occur. Therefore, the suggested combination of *Valles* with *Ehsani et al.* would require a substantial reconstruction and redesign of the elements shown by *Ehsani et al.* as well as a change in the basic principal under which *Ehsani et al.* was designed to operate. The courts have reversed 103(a) rejections when "the suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Furthermore, if the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the

patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not. MPEP 2142.

Applicant believes that he has provided argument that overcomes the 103(a) rejection by a preponderance of the evidence.

Claims 5-9 depend upon claim 1 and contain all there limitations thereof. Therefore applicant submits that each of claims 5-9 teach past the prior art of record for at least the same reasons set forth with respect to claim 1.

Claim 10 teaches a computer-readable medium that stores instructions for controlling a computer device to generate a spoken dialog application. The instructions include instructions for generating a finite state machine from a context free grammar representation of a call flow; and instruction for generating a dialogue application code for a spoken dialogue application from the finite state machine, wherein the generated application code for the functions are executable during runtime of the spoken dialog application for walking the finite state machine from the at least one root to the at least one leaf of the finite state machine. [See Applicant's claim 10]. Support for the amendments can be found in Applicant's Original Specification, page 7, paragraph 0031.

For the reasons stated above, with respect to claim 1, Applicant believes that the section 103(a) rejections should be withdrawn, with respect to claim 10.

Claim 11 teaches a system for generating a spoken dialog application. The system includes a processor in communication with a module, wherein the module is configured to generate a finite state machine from a context free grammar representation of a call flow. The module is configured to generate application code, using the finite state machine, wherein the

application code is generated dependent on how the finite state machine is traversed, for functions to be executed upon state transitions in the finite state machine. The generated application code for the functions are executable during runtime of said spoken dialog application, wherein the finite state machine is traversed from the at least one root to the at least one leaf of the finite state machine. Support for the amendments can be found Applicant's Original Specification, page 7, paragraph 0031.

For the reasons stated above in the discussion of claim 1 Applicant believes each cited reference fails to teach or even suggest generating a finite state machine from a context free grammar representation of a call flow. Further, as set for with respect to claim 1, Applicant believes each reference, alone or in combination, fails to teach or even suggest the application dialogue code being generated dependent on how said finite state machine is traversed. Applicant has set forth with respect to claim 1, how each reference fails to disclose the finite state machine generating the generating dialogue application source code.

Applicant's claim 12 teaches a spoken dialog application method. The method includes traversing a finite state machine, that is generated from a context free grammar representation of a call flow, generating application code as the finite state machine is traversed from the at least one root to the at least one leaf of the finite state machine, and invoking the generated application code for functions associated with nodes in the finite state machine, wherein each node of said finite state machine is mapped to a corresponding function.

For the reasons stated above in the discussion of claim 1 applicant believes that the section 103(a) rejection should be withdrawn, with respect to claim 12.

Claims 14-16 depend on claim 12 and incorporate the limitations of claim 12. Therefore, Applicant believes the section 103(a) rejection as applied to claims 14-16 should be withdrawn for at least the same reasons set forth with respect to claim 12.

Applicant's Claim 17 teaches a spoken dialog system. The spoken dialogue system includes a means for traversing a finite state machine, that is generated from a context free grammar representation of a call flow; a means for generating application code as the finite state machine is traversed using the finite state machine; and a means for invoking the application code

for functions associated with nodes in said finite state machine, wherein each node of said finite state machine is mapped to a corresponding function.

For the reasons stated above in the discussion of claim 1, Applicant believes that the section 103(a) rejection should be withdrawn with respect to claim 17.

Reconsideration of claims 1, 5-12, and 14-17 is respectfully requested.

The Office Action rejected claims 2, 3, and 13 under 35 USC § 103 (a) as being unpatentable over *Ehsani et al.* (US PGPub 2002,0032564) and in view of *Valles* (US PGPub 2004/0083092) as applied to claim 1 in further view of *Marx et al.* (US 6,173,266).

Claim 2 has been canceled and incorporated into claim 1. Applicant believes claim 2 is patentably distinct from the art of record for the reasons set forth with respect to claim 1, because applicant believes that *Marx et al.* do not teach those limitations which the combination as applied to claim lacks.

Claim 3 depends from claim 1 and includes all the limitations thereof. Therefore, Applicant believes that claim 3 teaches past the prior art of record for at least the same reasons as claim 1. Further, applicant believes that *Marx et al.* do not disclose those limitations which the combination previously applied to claim 1 lacks.

Claim 13 depends from claim 12 and contains all the limitations thereof. Therefore Applicant believes that claim 3 teaches past the prior art of record for at least the same reasons as claim 1. Reconsideration is respectfully requested for claims 3 and 13.

The Office Action rejected claim 4 is rejected under 35 USC § 103 (a) as being unpatentable over *Ehsani et al.* (US PGPub 2002,0032564) and in view of *Valles* (US PGPub 2004/0083092) as applied to claim 1 in further view of *Marx et al.* (US 6,173,266) and *Yuschik* (US 7,139,706).

Claim 4 depends from claim 1 and includes all the limitations thereof. Therefore Applicant believes that claim 4 teaches past the prior art of record for at least the same reasons as claim 1. Further, applicant believes that *Marx et al.* do not disclose those limitations which the

combination previously applied to claim 1 lacks. Reconsideration is respectfully requested for claim 4.

Applicant believes that in view of the above argument that claims 1-17 are in condition for allowance, and such allowance is respectfully requested.

Applicant appreciates the Examiner's time and attention to this matter. Applicant believes no new matter has been added with any amendments that have been made. Applicant believes claims as now provided are in condition for allowance. Reconsideration of this application is respectfully requested.

Respectfully submitted,

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